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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,145	03/19/2004	Kenneth A. Frankel	720010.401	8651

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EXAMINER	
WOLLSCHLAGER, JEFFREY MICHAEL	
ART UNIT	**PAPER NUMBER**
1732	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/805,145	FRANKEL, KENNETH A.	
	Examiner	Art Unit	
	Jeff Wollschlager	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *14-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-13, drawn to a method of producing a hollow composite article, classified in class 264, subclass 511.

II. Claims 14-18, drawn to a method of producing a hollow composite article, classified in class 264, subclass 511.

III. Claim 19, drawn to a hollow composite article, classified in class 428, subclass 36.9.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are directed to related processes. The related inventions are distinct if the inventions as claimed do not overlap in scope, i.e., are mutually exclusive; the inventions as claimed are not obvious variants; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 806.05(j). In the instant case, the different inventions have different modes of operation. The first invention employs vacuum means to form a bladder around a first mandrel. The second invention employs an unrelated second mandrel to form a bladder.

Inventions I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process

(MPEP § 806.05(f)). In the instant case, the product can be made by a materially different process. For example, a solid composite can be molded followed by having its center machined to form a hollow article, with additional inserts being adhered to the inner cavity.

Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product can be made by a materially different process. For example, a solid composite can be molded followed by having its center machined to form a hollow article, with additional inserts being adhered to the inner cavity.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Thomas Loop on April 27, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (U.S. Patent 6,458,306; issued October 1, 2002) in view of Marchant (U.S. Patent 6,264,868; issued July 24, 2001).

Regarding claim 1, Nelson et al. teaches a method for forming a hollow composite material part/bicycle frame/complex three-dimensional part (col. 3, lines 27-34) having one or more inserts integrally associated therewith (col. 16, lines 44-45), wherein the composite part defines a first shape, comprising: providing a mandrel that is substantially the same as, but sized smaller than the first shape of the composite part (col. 3, lines 55-58), forming an elastic/flexible layer about the mandrel to define an elastic/flexible bladder (col. 3, lines 58-60; col. 4, lines 32-36; col. 11, lines 49-66) , applying a vacuum in between the bladder and the mandrel to force and conform the bladder against the exterior surface of the mandrel (col. 12, lines 62-65), applying a resin and a fiber material about the bladder (col. 3, lines 63-65; col. 13, lines 38-43), placing the uncured part into a mold with a third shape that is substantially the same as the first shape of the composite part (col. 4, lines 3-7), applying a fluid or gas pressure between the mandrel and the uncured part to force and conform the uncured part

against the interior surface of the mold (col. 4, lines 7-9), heating the mold to a temperature for a period of time sufficient to cure the resin (col. 4, lines 9-10), removing the mandrel from the composite part (col. 16, lines 10-12), and removing the bladder from within the composite part (col. 16, lines 10-12).

Nelson et al. do not teach that the mandrel has recesses that are complementary to the integrally associated inserts (core, structural insert, or veneer pieces), nor does Nelson et al. teach applying the inserts into the recesses in the mandrel as part of the method. However, Marchant teaches an analogous method for forming a hollow composite article wherein the mandrel (called a core by Marchant) comprises several elements/inserts positioned within the core to be used for forming geometrically complex cavities within the hollow part (col. 8, lines 25-33).

Therefore it would have been *prima facie* obvious to combine the methods taught by Nelson et al. and Marchant to produce a hollow composite with inserts because Nelson et al. discloses that inserts may be integrated within the hollow composite (col. 16, lines 44-45) but does not provide specifics on how to perform that step. One of ordinary skill would have been motivated to find a teaching for integrating an insert into the hollow article while still being able to realize the benefits of the method taught by Nelson et al. The method taught by Marchant would have been an obvious choice due to it being highly analogous to the method of Nelson et al while providing the necessary detail lacking in the method of Nelson et al. As such, the claimed invention as a whole is rendered obvious over the combined teaching of the prior art.

As to claim 5, Nelson et al. teach the mandrel can be made of foam (col. 10, line 49) or any readily soluble in water material that presents no extensive waste disposal costs (col. 11, lines 37-40). It is noted that wax is also a well known and an obvious choice in the art of making hollow articles.

As to claim 6, Nelson et al. teach that the bladder is flexible, inflatable, and made of silicone material (col. 11, lines 48-67). Although Nelson et al. do not use the word rubber, the teaching of Nelson et al. that the silicone is flexible and inflatable strongly implies rubber. This combined with the well known status of silicone rubber in the art renders the claim obvious.

As to claim 8, Nelson et al. teach that the fiber is preferably a carbon fiber (col. 13, lines 39-41).

As to claim 9, the mold employed by Nelson et al. is an open ended split mold (col. 14, lines 31-32; Figures 13 and 16, showing open ended projections coming through the mold).

As to claims 10-12, Nelson et al. do not teach the claimed molding pressures, temperatures, or curing times. However, Nelson et al. do teach that molding pressure, temperature and curing time can be optimized to produce the desired results and that higher and lower pressures, temperatures, and curing times may be employed to fit design requirements (col. 15, lines 10-14 and 19-22). So one of ordinary skill in the art would have to take all of these variables into consideration when determining how to mold the hollow composite part. As such, these are recognized control variables for molding hollow composites and would have been readily optimized, as is taught by

Nelson et al.. (See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)). As such, the claimed invention as a whole is rendered obvious over the teaching of the prior art.

As to claim 13, Nelson et al. teach applying a second vacuum between the uncured part and the interior surface of the mold (col. 5, lines 8-10).

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (U.S. Patent 6,458,306; issued October 1, 2002) in view of Marchant (U.S. Patent 6,264,868; issued July 24, 2001) and further in view of Lang et al. (U.S. Patent 6,406,659; issued June 18, 2002).

As to claims 2-4, Nelson et al. in view of Marchant teach the method of claim 1 as discussed in the 103(a) rejection above, but do not provide details on the specific elements/inserts employed in the method. However, Lang et al. teach a method of molding an analogous composite resin and fiber article where they articulate that it is known in the art to employ honeycomb cores, metal inserts, and wood as part of the structure (col. 2, lines 60-64). It is noted that the word veneer is interpreted as a slice/piece of wood pressed onto a different material. In this example the wood is pressed into the composite to form a veneer. Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the claimed invention to take the general method taught by Nelson et al. in view of Marchant and employ specifically known inserts/elements as evidenced by Lang et al. because one of ordinary skill would be motivated to employ inserts that would provide functional, structural, and aesthetic

qualities and that are readily compatible with the resin and fiber composite. As such, the claimed invention as a whole is rendered obvious over the combined teaching of the prior art.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (U.S. Patent 6,458,306; issued October 1, 2002) in view of Marchant (U.S. Patent 6,264,868; issued July 24, 2001) and further in view of Fujino et al. (U.S. Patent 6,399,199; issued June 4, 2002).

As to claim 7, Nelson et al. in view of Marchant teach the method of claim 1 as discussed in the 103(a) rejection above, but do not provide sufficient detail regarding the resins employed in the method. Nelson et al. do teach that any suitable impregnated material used in cured composite parts may be used in the method (col. 13, lines 38-40).

Fujino et al. teach resin impregnated fibers used for analogous composite materials readily include vinyl ester resins, polyester resins, phenolic resins, and epoxy resins (col. 1, lines 48-53). These resins are combined with carbon fibers and glass fibers (col. 1, lines 38-39) to form composite materials. Therefore, as evidenced by Fujino et al., it would have been *prima facie* obvious to one of ordinary skill at the time of the claimed invention to take the teaching of Nelson et al. to use any suitable impregnated material and use one of the materials taught by Fujino et al. because, as taught by Fujino et al., the specific thermosetting resins listed provide excellent impregnation of reinforcing fibers (col. 1, lines 43-46).

Conclusion

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,561,459 discloses silicone rubber bladders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

April 28, 2006

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER